



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,652	11/04/2003	Hagop A. Nazarian	M4065.0901/P901	3940

24998 7590 04/18/2005

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L Street, NW
Washington, DC 20037

EXAMINER

NGUYEN, TAN

ART UNIT	PAPER NUMBER
----------	--------------

2827

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

Office Action Summary	Application No.	Applicant(s)	
	10/699,652	NAZARIAN, HAGOP A.	
	Examiner	Art Unit	
	Tan T. Nguyen	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 9, 10, 12, 16-21, 25, 28-31, 33, 36, 37, 39, 43-45, 48 and 52 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 8, 11, 13-15, 22-24, 26, 27, 32, 34, 35, 38, 40-42, 46, 47, 49, 50 and 53 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/03</u> . | 6) <input type="checkbox"/> Other: ____ |

1. The Information Disclosure Statement submitted by Applicant on November 4, 2003 has been received and fully considered.

2. Claims 4, 10, 31, 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 4 and 31, it is not clear how "each bit line is in electrical communication with a sensing circuit". It appears in Fig. 2a, 3 and 4a that every other bit line is coupled to the sensing circuit. In claims 10 and 37, it is not clear what Applicant means by "semi-volatile".

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4 (as best understood), 6, 9, 12, 16, 17-21, 25, 28-31, 33, 36, 39, 43, 44-45, 48 and 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Hung et al. (U.S. Patent No. 6,757,189).

Regarding claims 1-4, 6, 12, 16, 17-18, 25, Hung et al. disclosed in Fig 3 a high density MRAM comprising a two-bit memory cell of a series of MTJ structure, wherein the first MTJ cell [R1] and the second MTJ [R2] are connected with each other through a transistor [30]. The transistor [30] is used for controlling readout signal through a read

word line [WL1] at the gate terminal. One terminal of the first MTJ cell [R1] is connected to the first bit line [BL1] and one terminal of the second MTJ cell [R2] is connected to the second bit line [BL2] (column 3, lines 45-55).

Regarding claim 9 and 36, Hung et al. disclosed the MRAM has advantages such as non-volatility (column 1, line 20).

Regarding claims 28-31, 33, 39 and 43, although Hung et al. did not disclose a processor, it is inherent that the MRAM device disclosed by Hung et al. includes a processor to generate the control signals for the device.

Regarding claims 19-21, 44-45, 48 and 52, Hung et al. disclosed in Fig. 10 a reading operation of the series MTJ structure wherein the transistor [83] is turned on by the read word line [WL1]. A voltage current is provided from the first bit line [BL1], and the second bit line [BL2] is grounded. The sense current flows through the left MTJ [81], the transistor [83] and the right MTJ [82], and the ground terminal. The reading process is performed by comparing the sense current with a reference current generated by a reference generator [100] (column 7, lines 9-17).

5. Claims 5, 7-8, 11, 13-15, 22-24, 26-27, 32, 34-35, 38, 40-42, 46-47, 49-50 and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

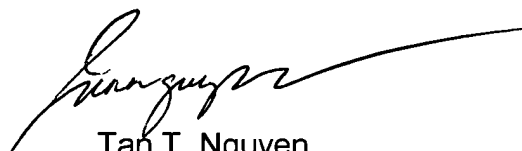
Naji and Sugibayashi et al. are cited to show different types of MRAM.

Art Unit: 2827

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan T. Nguyen whose telephone number is (571) 272-1789. The examiner can normally be reached on Monday to Friday from 07:00 AM to 03:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoai Ho, can be reached at (571) 272-1777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tan T. Nguyen
Primary Examiner
Art Unit 2827
April 13, 2005